FCC Test Report

Report No.: AGC02294180606FE08

FCC ID	:	2AJGM-BFA58
PRODUCT DESIGNATION	:	Dual Band FM Transceiver
BRAND NAME	:	BAOFENG,pofung
MODEL NAME	:	BF-A58, UV-9R, UV-5R WP, GT-3WP
CLIENT	:	PO FUNG ELECTRONIC(HK) INTERNATIOANL GROUP COMPANY
DATE OF ISSUE	:	Jun. 26, 2018
STANDARD(S)	:	FCC Part 15 Rules
REPORT VERSION	:	V 1.0

Attestation of ***G***lobal ***C***ompliance (Shenzhen) Co., Ltd

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jun. 26, 2018	Valid	Initial Release

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1. VERIFICATION OF COMPLIANCE

Applicant	PO FUNG ELECTRONIC(HK) INTERNATIOANL GROUP COMPANY
Address	3/F FULOK BLDG 131-133 WING LOK ST SHEUNG WAN, Hong Kong
Manufacturer	PO FUNG ELECTRONIC(HK) INTERNATIOANL GROUP COMPANY
Address	3/F FULOK BLDG 131-133 WING LOK ST SHEUNG WAN, Hong Kong
Product Designation	Dual Band FM Transceiver
Brand name	BAOFENG, pofung
Test Model	BF-A58
Serial Model	UV-9R, UV-5R WP, GT-3WP
Serial Model Difference	All the same except for the model name, brand name, and appearance shape.(UV-9R, UV-5R WP is BAOFENG/ GT-3WP is pofung)
Hardware Version	WP9701-V04.2
Software Version	V1.1.0
Measurement Procedure	ANSI C63.4: 2014
Date of test:	Jun. 19, 2018 to Jun. 26, 2018
Deviation:	None
Condition of Test Sample	Normal

The above equipment was tested by Attestation Of Global Compliance (Shenzhen) Co., Ltd. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2014. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Tested By

Steven Zhou(Zhou Pengyun) Jun. 26, 2018

Reviewed By

Bart Xie(Xie Xiaobin) Jun. 26, 2018

Approved By

Forrest Lei(Lei Yonggang)
Authorized Officer Jun. 26, 2018

2. PRODUCT INFORMATION

The EUT is a Dual Band FM Transceiver designed for voice communication. It is designed by way of utilizing the F3E modulation achieves the system operating.
A major technical description of EUT is described as following:

Communication Type	Voice / Tone only
Modulation	FM
RX Frequency Range	Rx:136 MHz -174 MHz, 400MHz -480MHz
Emission Type	F3E
Antenna Designation	Detachable
Antenna Gain	2.15dBi
Power Supply	DC 7.4V 1800mAh, charging with DC 8.4V.
Adapter Parameter	INPUT:AC 100-240V~ 50/60Hz ,0.4A OUTPUT:DC 10V 0.5A
Charger Parameter	INPUT: DC 10V 1A OUTPUT:DC 8.4V 0.4A

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	**Q'TY**	**Cable**	**Tested with**
DC Input Port	1	1.14m, Unshielded	1
Antenna Connect Port	1	0	1

3. IDENTIFICATION OF THE RESPONSIBLE TESTING LOCATION

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Bldg.12, Baoan Bldg Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen 518012
NVLAP LAB CODE	600153-0
Designation Number	CN5028
FCC Test Firm Registration Number	682566
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0

List Of Test Equipment:

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	100096	Jun. 12, 2018	Jun. 11, 2019
AMN/LISN	R&S	ESH2-Z5	100086	Aug. 24, 2017	Aug. 23, 2018
TEST SOFTWARE	FR	EZ-EMC	AGC-CON03 A	--	--

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Jun. 12, 2018	Jun. 11, 2019
ANTENNA	SCHWARZBECK	VULB9168	494	Sep. 27, 2017	Sep. 28, 2019
TEST RECEIVER	R&S	ESCI	100694	Jun. 12, 2018	Jun. 11, 2019
AMPLIFIER	Schwarzbeck	BBV 9718	9718-205	Jun. 12, 2018	Jun. 11, 2019
POSITIONING CONTROLLER	MF	MF-7802	MF780208285	--	--
HORN ANTENNA	ETS LINDGREN	3117	00034609	May. 17, 2017	May. 18, 2019

4. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
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5. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices.
2. Power on the EUT, the EUT begins to work.
3. Make sure the EUT normal working.

EMC TEST MODES

No.	TEST MODES
1	Scanning mode
2	Scanning stopped/Receiving

Note: Only the result of the worst case was recorded in the report.

6. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.107	Conduction Emission	Compliant
§15.109	Radiated Emission	Compliant
§15.111	Antenna Conducted Power for receivers	Compliant

7. FCC RADIATED EMISSION TEST

7.1. TEST EQUIPMENT OF RADIATED EMISSION

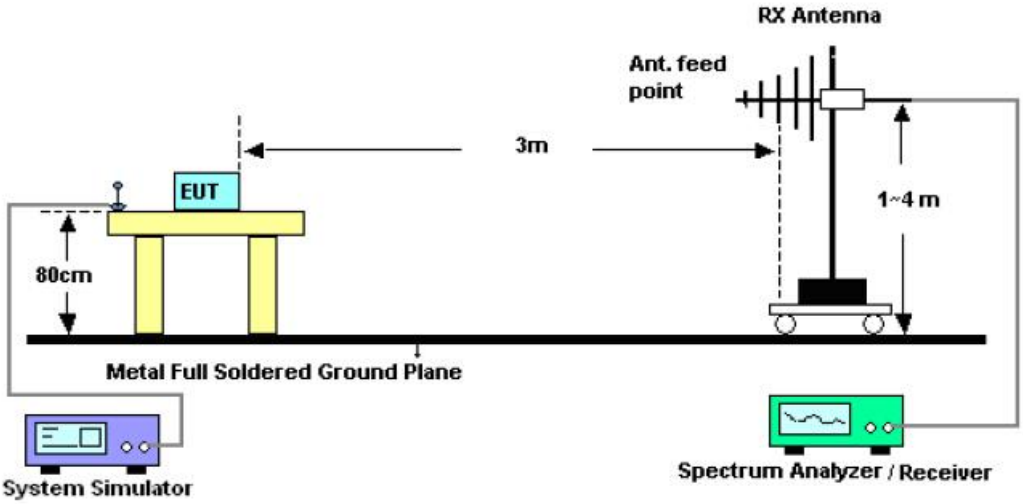
7.2. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	41.0
88~216	3	45.0
216~960	3	48.0
960~2000	3	53.5

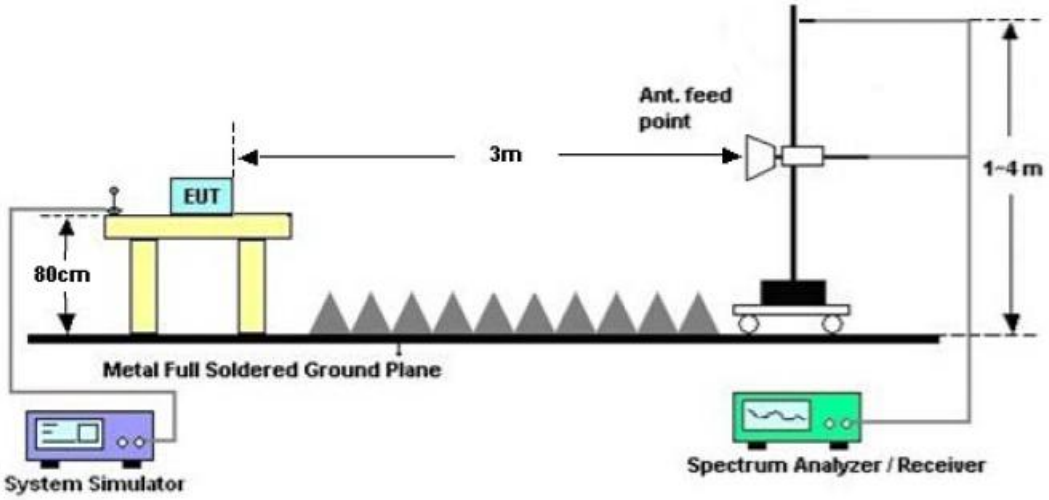
**Note: The lower limit shall apply at the transition frequency. Because the EUT RX frequency range up to 480 MHz, so the upper the frequency range up to 2 GHz.

7.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST

RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz

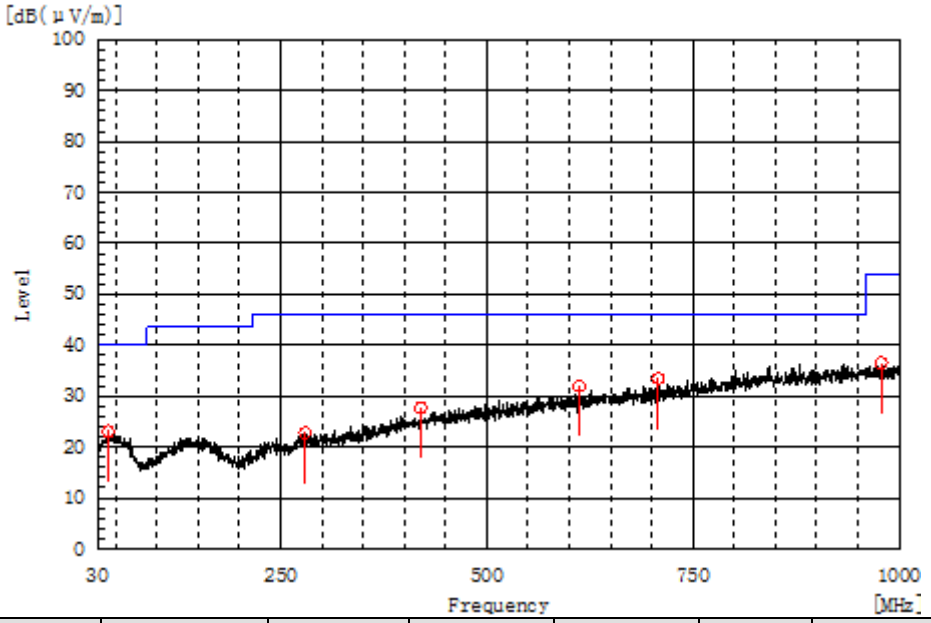


7.4 PROCEDURE OF RADIATED EMISSION TEST

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per ANSI C63.4.
3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4) The EUT received power by AC 120V/60Hz.
5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
7) The test mode(s) were scanned during the test:
8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented. For emissions below 1GHz, use 120KHz RBW and VBW>=3RBW for QP reading.
9) For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
10) When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
11) If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
12) For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
13) In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.
14) The test data of the worst case condition (mode 1) was reported on the following Data page

7.5 TEST RESULT OF RADIATED EMISSION TEST

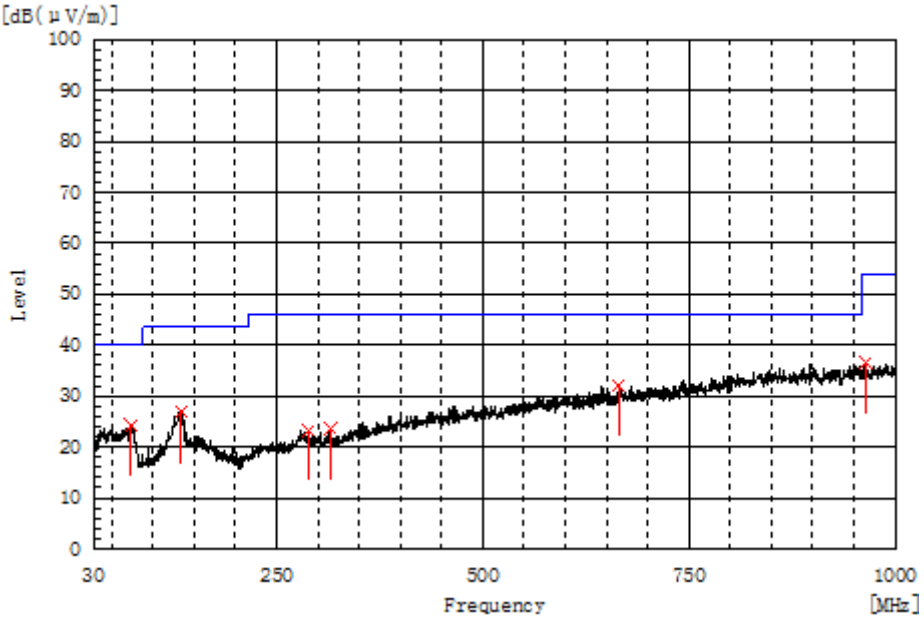
Radiated Emission Test –Horizontal -3m Below 1G



Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m) PK	Limit dB(uV/m) QP	Margin dB	Pass/Fail	Height cm	Angle deg
41.155	H	5.7	17.4	23.1	40.0	16.9	Pass	100.0	253.0
279.775	H	5.1	17.7	22.8	46.0	23.2	Pass	200.0	88.2
419.940	H	6.3	21.4	27.7	46.0	18.3	Pass	200.0	267.9
612.000	H	6.8	25.1	31.9	46.0	14.1	Pass	200.0	303.4
708.030	H	7.0	26.5	33.5	46.0	12.5	Pass	200.0	269.2
978.175	H	5.6	30.9	36.5	54.0	17.5	Pass	100.0	107.6

RESULT: PASS

Radiated Emission Test –Vertical -3m Below 1G



Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m) PK	Limit dB(uV/m) QP	Margin dB	Pass/Fail	Height cm	Angle deg
73.165	V	10.7	13.5	24.2	40.0	15.8	Pass	200.0	216.4
134.760	V	10.3	16.5	26.8	43.5	16.7	Pass	200.0	143.1
288.505	V	5.7	17.6	23.3	46.0	22.7	Pass	200.0	72.1
316.635	V	5.9	17.7	23.6	46.0	22.4	Pass	150.0	143.3
665.350	V	6.2	25.8	32.0	46.0	14.0	Pass	150.0	213.8
964.595	V	5.7	30.8	36.5	54.0	17.5	Pass	150.0	72.2

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.
2. The “Factor” value can be calculated automatically by software of measurement system.
3. Emissions range from 1GHz to 2GHz have 20dB margin. No recording in the test report.
4. Only the data of the worst case would be record in this test report.

8. CONDUCTED EMISSION TEST

8.1 PROVISIONS APPLICABLE

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the, the radio frequency voltage that is conducted back onto the AC power line on any frequencies within the band 150 KHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50uH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit(dBuV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50

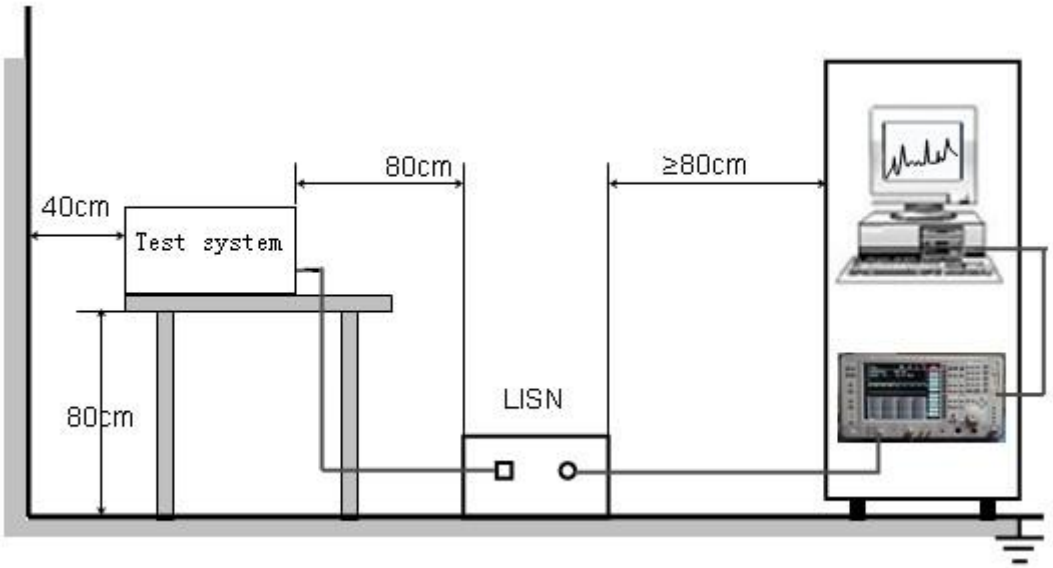
* Decreases with the logarithm of the frequency.

8.2 MEASUREMENT PROCEDURE

(1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
(2) Support equipment, if needed, was placed as per ANSI C63.4.
(3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
(4) The EUT received AC 120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
(5) All support equipments received AC power from a second LISN, if any.
(6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
(7) Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

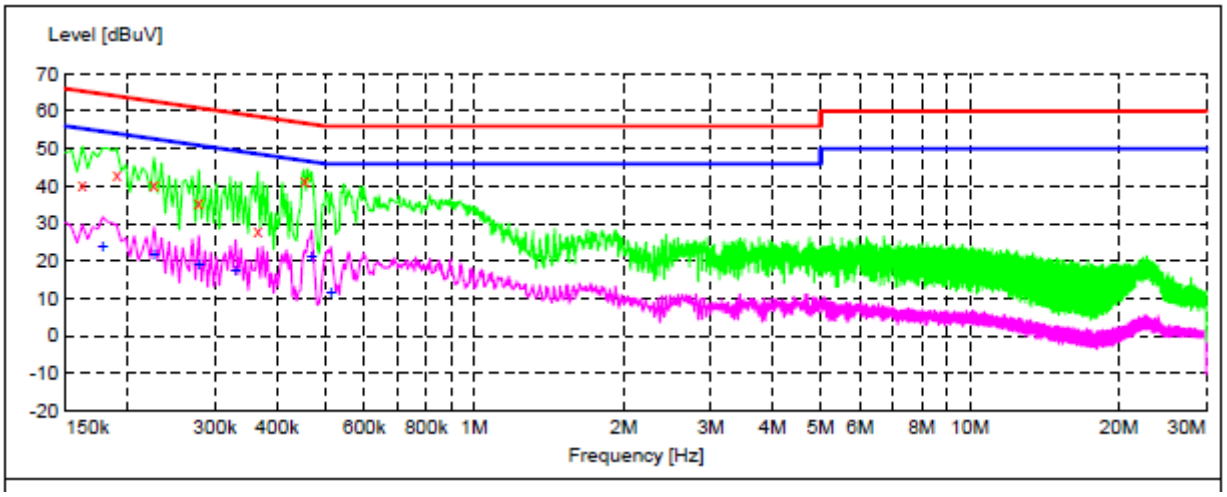
During the above scans, the emissions were maximized by cable manipulation.

8.3 TEST SETUP BLOCK DIAGRAM



8.4 TEST RESULT

CONDUCTED EMISSION TEST – LINE L



MEASUREMENT RESULT:

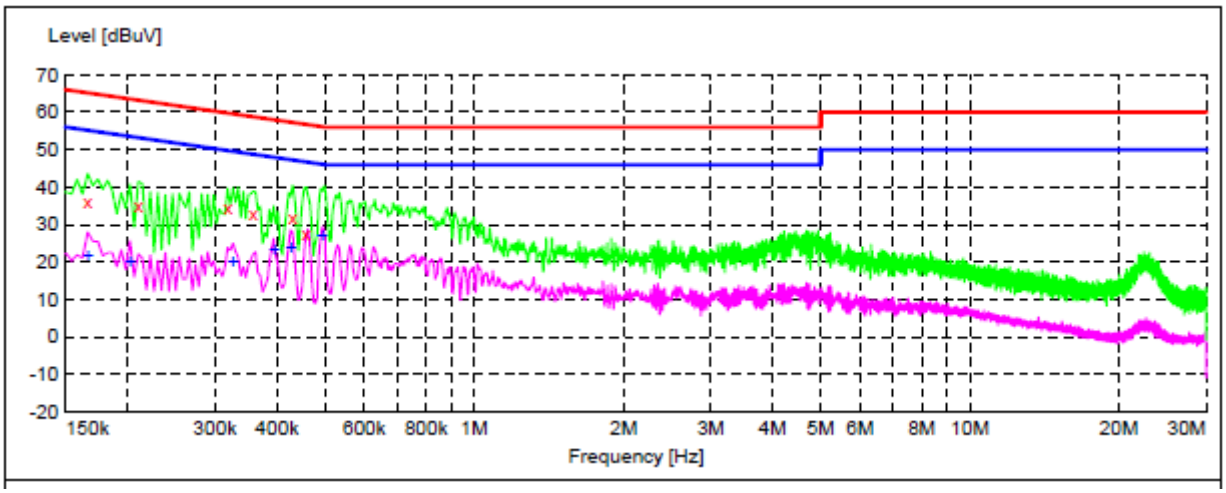
Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.162000	40.40	11.4	65	25.0	QP	L1	FLO
0.190000	42.80	11.4	64	21.2	QP	L1	FLO
0.226000	40.20	11.3	63	22.4	QP	L1	FLO
0.278000	35.70	11.3	61	25.2	QP	L1	FLO
0.366000	28.10	11.3	59	30.5	QP	L1	FLO
0.454000	41.40	11.4	57	15.4	QP	L1	FLO

MEASUREMENT RESULT:

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.178000	23.60	11.4	55	31.0	AV	L1	FLO
0.226000	21.60	11.3	53	31.0	AV	L1	FLO
0.278000	19.20	11.3	51	31.7	AV	L1	FLO
0.330000	17.40	11.3	50	32.1	AV	L1	FLO
0.470000	20.90	11.4	47	25.6	AV	L1	FLO
0.514000	11.60	11.4	46	34.4	AV	L1	FLO

RESULT: PASS

CONDUCTED EMISSION TEST – LINE N



MEASUREMENT RESULT:

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.166000	35.90	11.4	65	29.3	QP	N	FLO
0.210000	35.00	11.4	63	28.2	QP	N	FLO
0.318000	34.30	11.3	60	25.5	QP	N	FLO
0.358000	32.70	11.3	59	26.1	QP	N	FLO
0.430000	32.10	11.4	57	25.2	QP	N	FLO
0.458000	27.80	11.4	57	28.9	QP	N	FLO

MEASUREMENT RESULT:

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.166000	21.90	11.4	55	33.3	AV	N	FLO
0.202000	19.90	11.4	54	33.6	AV	N	FLO
0.326000	20.20	11.3	50	29.4	AV	N	FLO
0.394000	23.40	11.4	48	24.6	AV	N	FLO
0.426000	23.80	11.4	47	23.5	AV	N	FLO
0.494000	27.10	11.4	46	19.0	AV	N	FLO

RESULT: PASS

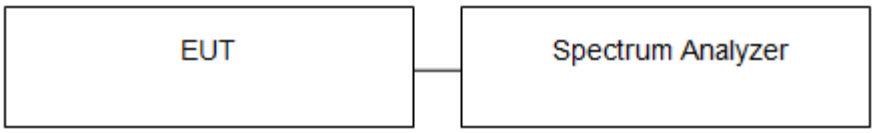
9. ANTENNA CONDUCTED POWER FOR RECEIVERS

LIMIT

The antenna conducted power of the receiver as defined in §15.111 shall not exceed the values given in the following tables

Frequency Range	9 KHz to 2GHz
Limit	2.0 nW (-57 dBm)

TEST CONFIGURATION



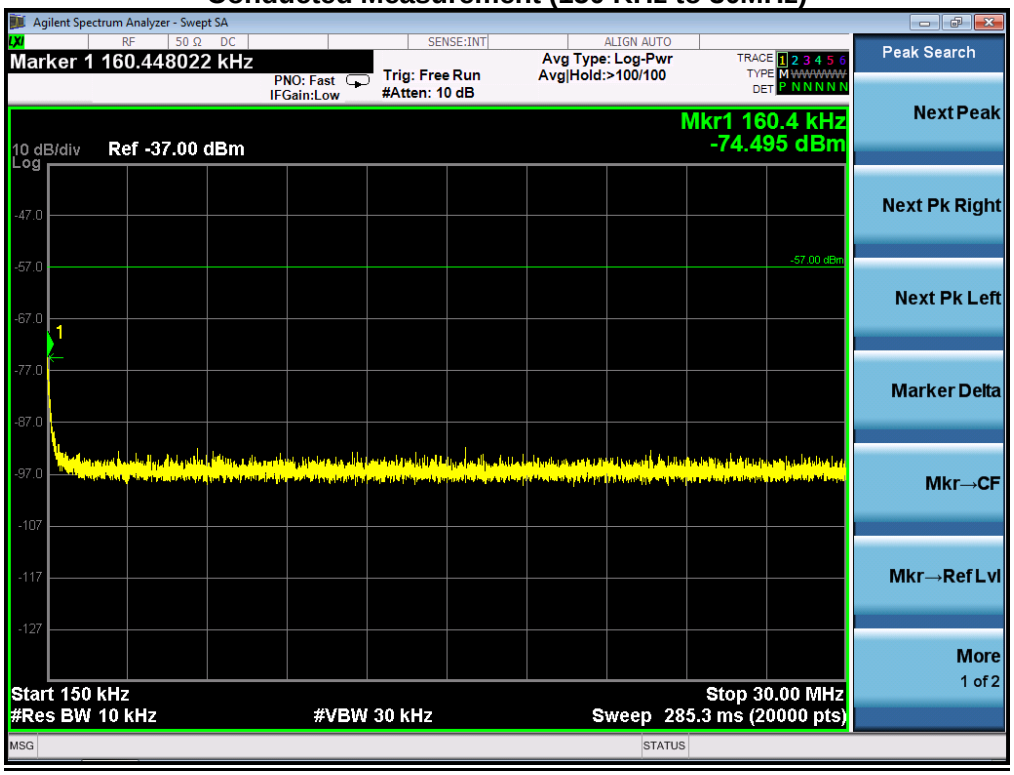
TEST PROCEDURE

1. The receiver antenna terminal connected to a spectrum analyzer.
2. The test data of the worst case condition (mode 1) was reported on the following Data page.

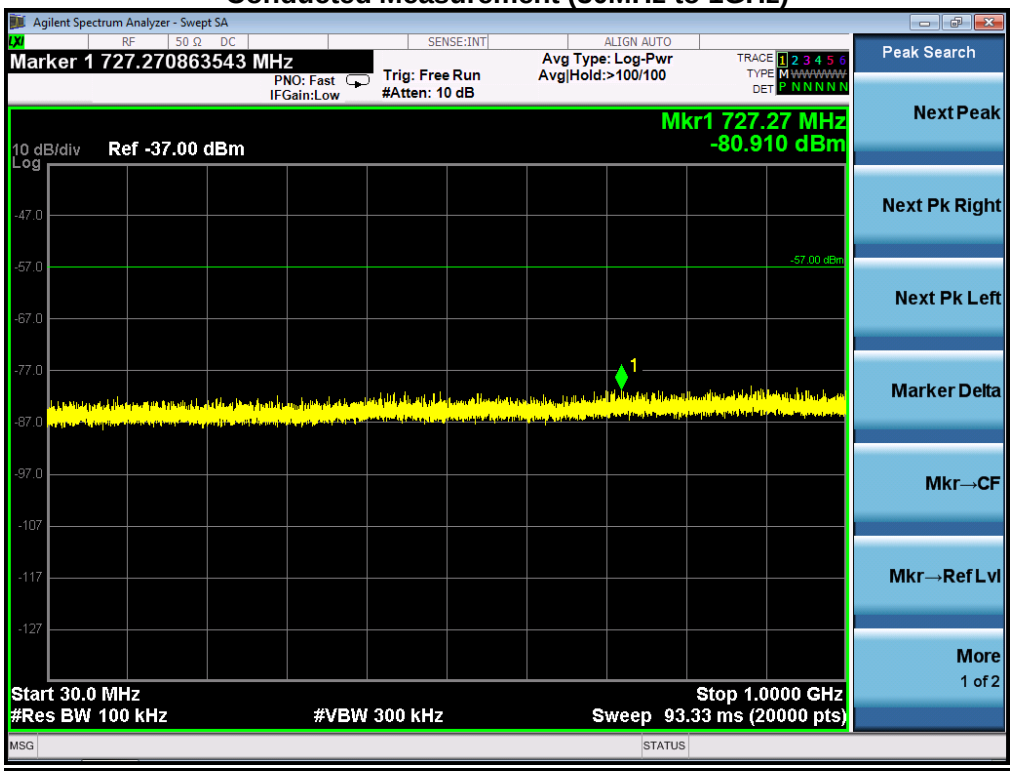
TEST RESULTS

Conducted Measurement (9 KHz to 150 KHz)

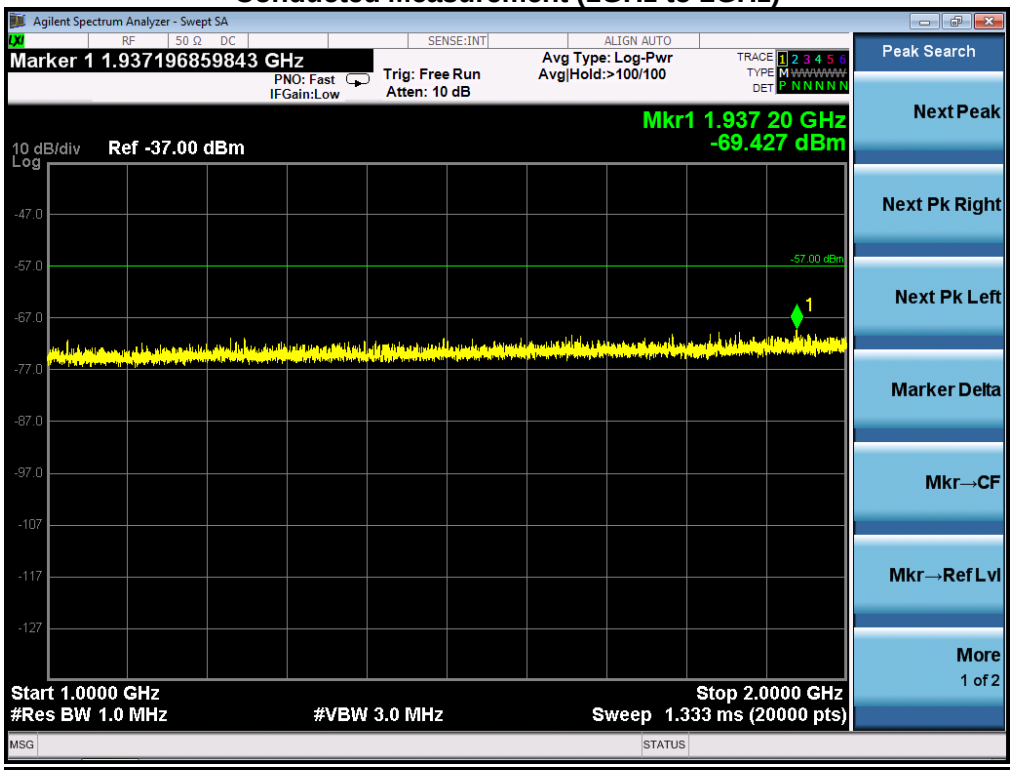
Conducted Measurement (150 KHz to 30MHz)



Conducted Measurement (30MHz to 1GHz)



Conducted Measurement (1GHz to 2GHz)

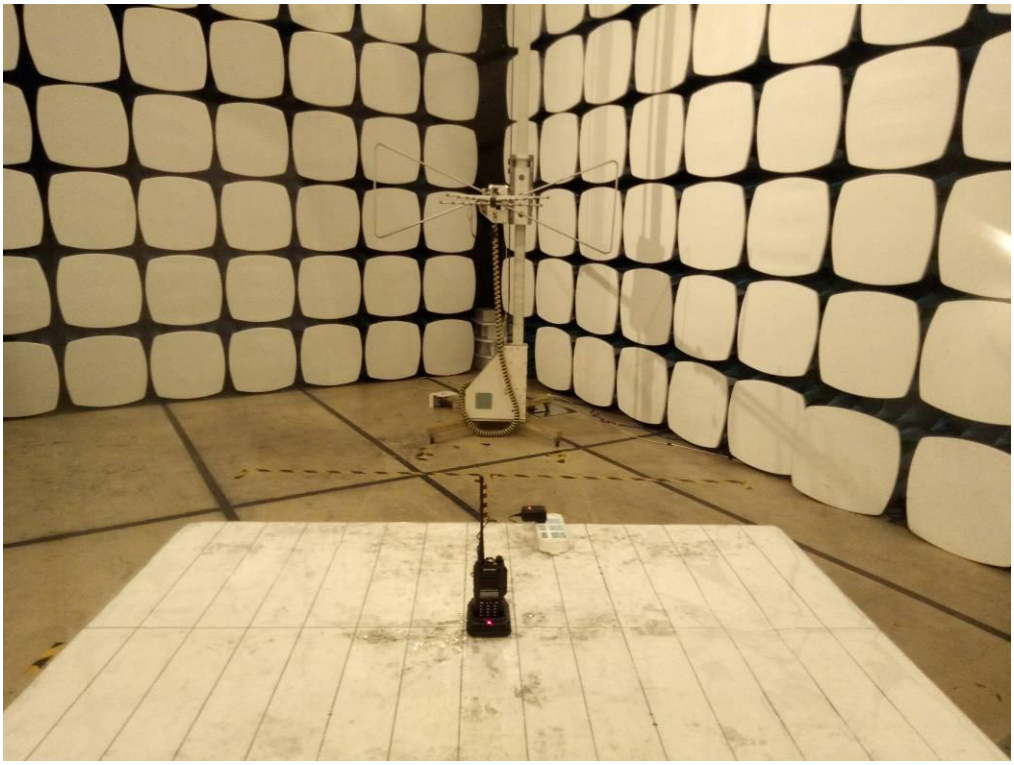


PASS

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

CONDUCTED EMISSION TEST SETUP

RADIATED EMISSION TEST SETUP



APPENDIX 2 PHOTOGRAPHS OF EUT

TOTAL VIEW OF EUT

TOP VIEW OF EUT

BOTTOM VIEW OF EUT

FRONT VIEW OF EUT

BACK VIEW OF EUT

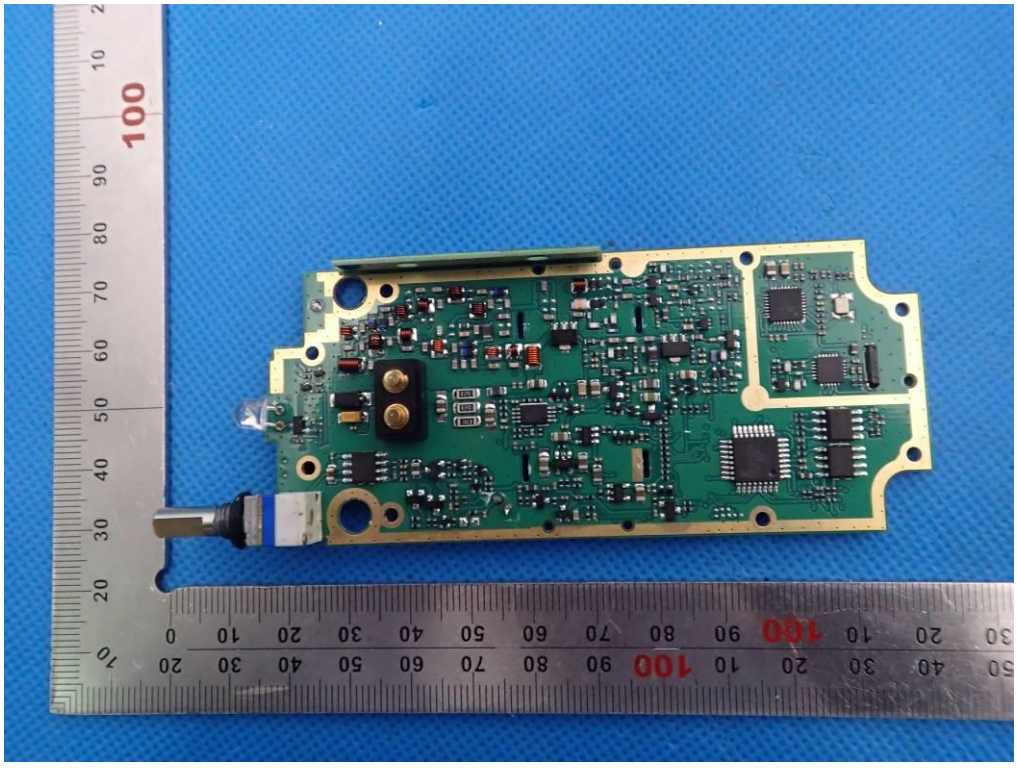
LEFT VIEW OF EUT

RIGHT VIEW OF EUT

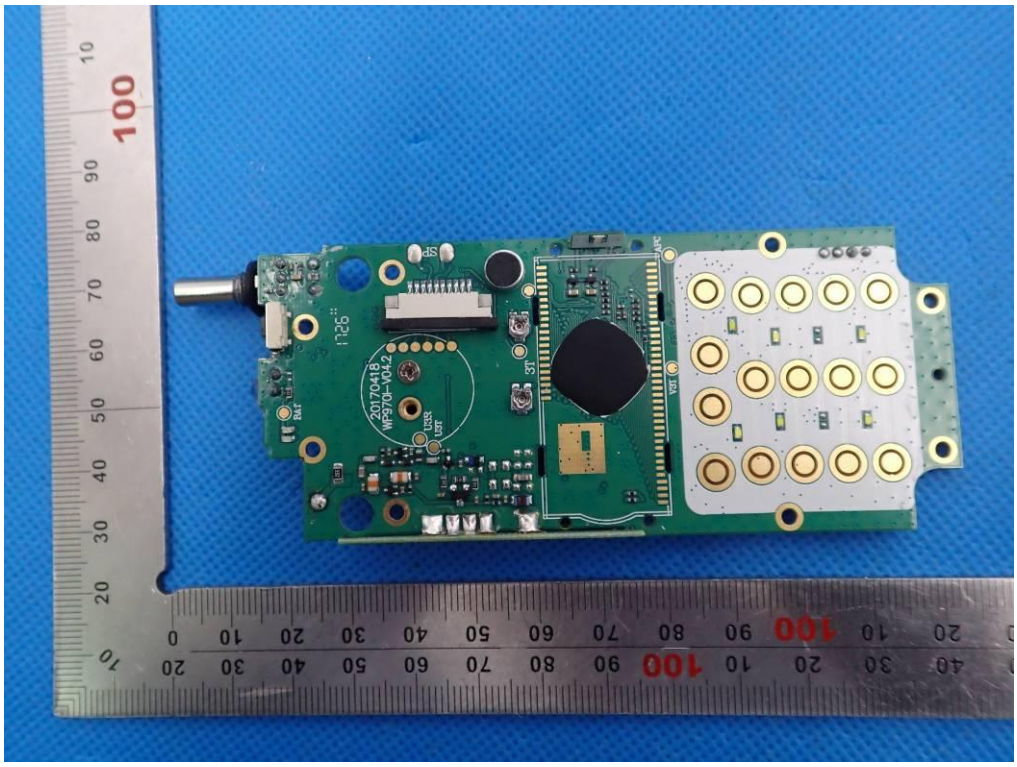
OPEN VIEW-1 OF EUT

INTERNAL VIEW-1 OF EUT

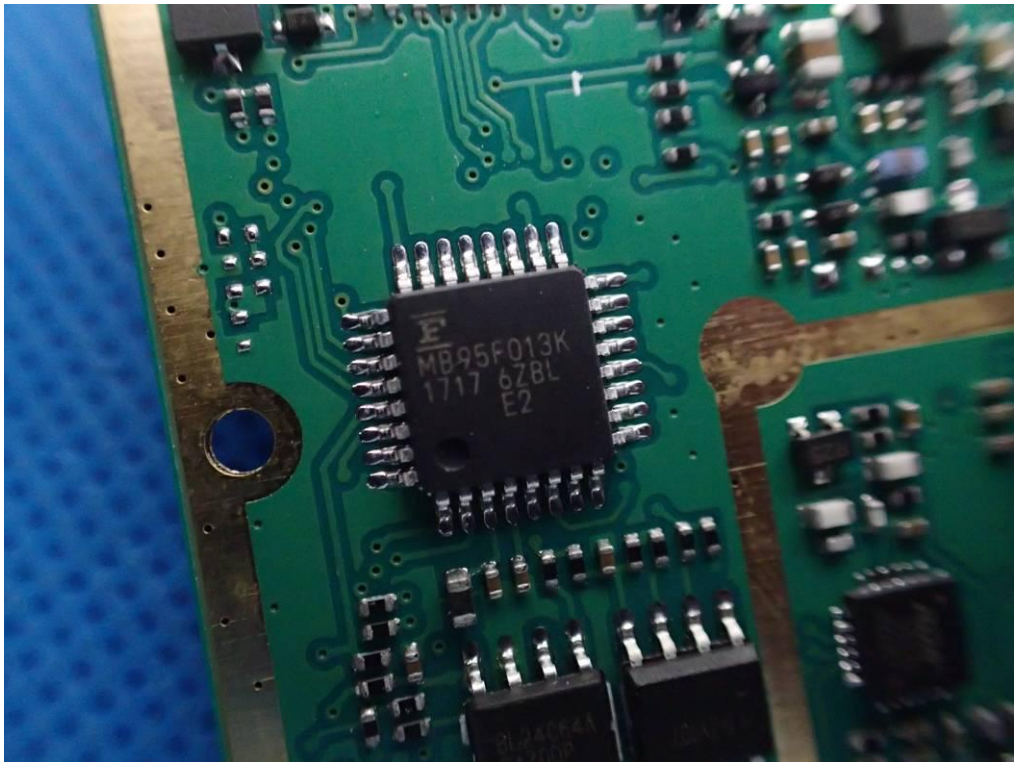
INTERNAL VIEW-2 OF EUT



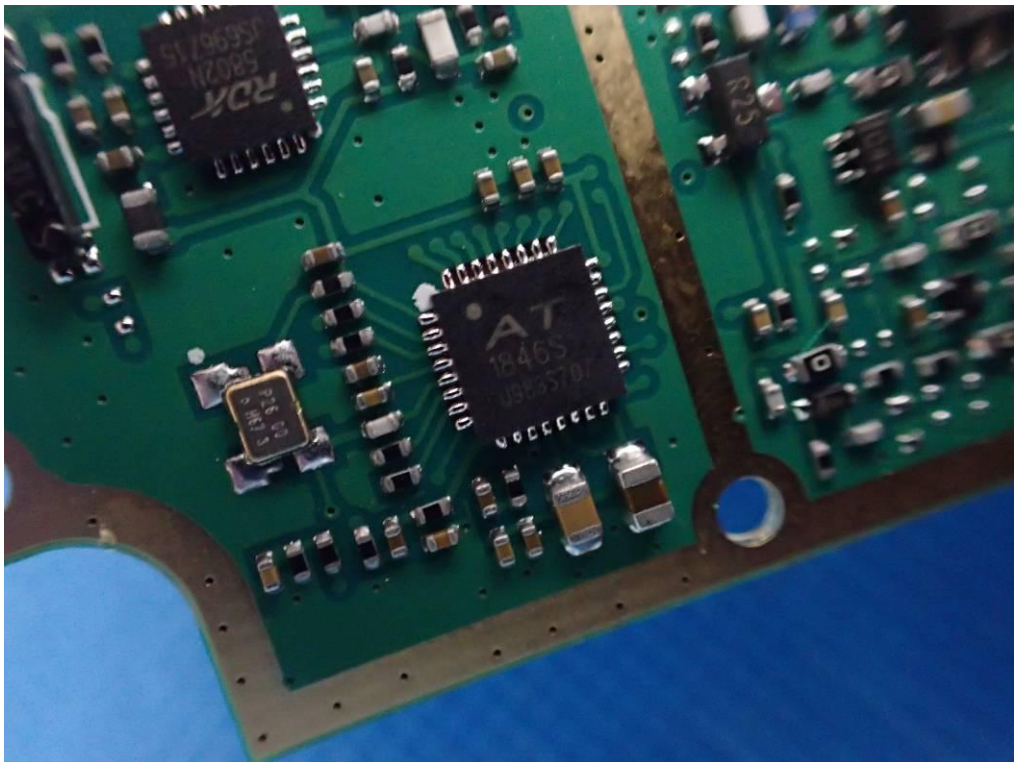
INTERNAL VIEW-3 OF EUT



INTERNAL VIEW-4 OF EUT



INTERNAL VIEW-5 OF EUT



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